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CIA/OSR /MEMO PA 750317 CIA ESTIMATES OF SOVIET DEFENSE SPEND-  
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## CIA Estimates of Soviet Defense Spending

## The Published Defense Budget

The USSR does not make public sufficient information on its military spending to permit estimates of the magnitude, composition, and pace of its defense effort. In contrast to the large amount of civilian economic data that are released regularly by the Soviets, information on spending for military purposes is closely protected.

Only one statistic--the single-line entry for "defense" in the annual *State Budget* is announced each year. Even its usefulness is limited, as the Soviets have never told us what activities the *Defense Budget* covers. Moreover, inasmuch as the trend of the *Defense Budget* does not fit the behavior of Soviet military activities over time, there is a strong suspicion that its coverage, whatever it may be, is subject to unannounced changes in different years. To cite only the most recent example, the *Defense Budget* was virtually constant during 1970-73 despite major changes in Soviet military procurement programs. Furthermore, the Soviets announced a cut in the budgets for 1974 and 1975 in the face of major additions to their forces that must have generated an increase in spending.

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The credibility of the *Defense Budget* is further denigrated by the recent Soviet practice of announcing identical figures for planned and actual spending after many years of reporting sometimes substantial differences between the two. For all of these reasons, we have come to treat the announced *Defense Budget* more as an indicator of the political image that the Soviets are trying to project--to their own people, to the United States, and to the world at large--than of the actual level of defense spending in the USSR.

If the announced *Defense Budget* were a reliable indicator of the overall level and trend of the Soviet defense effort, it would still have limited value. A single figure would not be useful in analyzing particular military programs, or in determining the potential impact on the Soviet economy of diverting resources from military to non-military uses. Finally, it would provide no basis for translating Soviet defense expenditures in rubles into dollar equivalents for comparisons with US programs.

#### Ruble and Dollar Estimates

Estimates of the costs of Soviet defense programs are prepared in two currencies--ruble and dollars--for

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completely different uses. The ruble estimates are meant to reflect the costs of defense programs from the Soviet perspective. These estimates are used to evaluate the level and rate of growth of Soviet outlays for defense and its internal composition, in terms both of resources (R&D, investment, and operating costs) and distribution by branch of military service. In addition, the ruble estimates are used to evaluate the impact of the costs of defense on the military decision-making process as well as on individual civil programs and, indeed, upon the economy as a whole.

To gain a better understanding of the size and magnitude of the Soviet programs, however, other measures are needed. Differences in missions, composition, and characteristics of the Soviet and US military establishments make it difficult to compare their relative size and strength. One approach to obtain such a measure is to express both sets of programs in terms of dollar costs. When this is done, the estimated dollar costs of the Soviet defense effort are in fact estimates of what it would cost the US to purchase the same military equipment and supplies; pay the same number of people; and carry on the same

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types of RDT&E (research, development, testing, and evaluation) and operations and maintenance programs as the Soviets. Conceptually, the Soviet defense program in this context can best be considered as an alternative US defense program.

#### Expenditure Estimates in General

For both the ruble and dollar estimates a detailed "direct costing" approach is used for all activities except R&D. Unit cost factors used in this method are derived generally in one currency and then converted to the other with ruble-to-dollar ratios. Only personnel costs are estimated directly in both currencies. The statement of procedures which follows, while focusing on the dollar estimates, should provide a good understanding of the development of both estimates.

#### Estimating the Dollar Costs of Soviet Programs

The dollar costs of Soviet defense activity are developed for the most part on the basis of a detailed identification and listing of Soviet forces. The force components so listed are multiplied by estimates of what they would cost in dollars. The results are then summed to different levels of

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aggregation (i.e., units, elements, missions, and resource categories).

The validity of the estimates depends on the reliability of the underlying physical data base and the accuracy of the cost factors applied to that base. The physical data base on forces and weapons reflects the combined collection and analytical efforts of the intelligence community. Available intelligence information has made it possible to develop a detailed inventory of the numbers and kinds of weapons and units that make up the Soviet armed forces. This extensive physical data base includes information on such items as deployment levels of Soviet strategic attack (intercontinental and peripheral), strategic defense, and general purpose forces; production of major weapons and items of equipment; and manning requirements of the forces.

We have high confidence in our force estimates for the major weapon systems--strategic missiles, ships, and most aircraft. For ground force units, information on the number of units is good but we are less sure of the manning levels of some of the divisions. We are less sure of estimates of weapons

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production than of the order-of-battle data but believe them to be reasonably accurate. Estimated manpower levels are good for most active forces, but we have less confidence in the estimates of manpower for command, support, and other functions.

Defense Investment Programs. Investment includes procurement of equipment and all spare parts and construction of facilities. The procurement costs of most major weapons--aircraft, missiles, and ships--are estimated through the use of cost estimating relationships which are based on US experience. These are factors which relate the cost of an item to its performance (e.g., total thrust or speed) and physical characteristics (e.g., number of engines or gross weight). Thus the performance and major physical characteristics of Soviet weapons--which can usually be ascertained with reasonable confidence through intelligence methods--provide a basis for estimating what it would cost in dollars to produce such weapons in the US. This method provides cost estimates which reflect the design and characteristics of Soviet systems. For a few items, actual Soviet equipment is available so that US firms are able to determine directly what it would cost to manufacture the item in the US.

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The lack of necessary data on some systems make it impossible to use either of the two approaches described above. In these cases, direct analogy--using the cost of similar US equipment--or some other gross approximation of cost, such as estimating total cost as a function of total weight, is used. Some smaller classes of Soviet ships, for example, are costed using these less refined methods.

Construction cost estimates are based on a good knowledge of Soviet construction practices and ruble construction costs. These estimated costs are transformed into dollars by the use of a ruble-to-dollar ratio based on the cost of similar construction in the US.

Defense Operating Programs. Operating costs are the sum of personnel costs--pay, other personnel allowances, and food--and operations and maintenance costs. Operations and maintenance costs include those which support the functioning of the defense establishment and cover such diverse items as fuel consumption and maintenance of facilities.

Dollar costs of Soviet military personnel are estimated by applying US factors for pay and allowances and for food to estimates of Soviet military



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manpower. Average factors are derived for each US service by dividing total pay and allowances and food costs for each service by total manpower in that service. The appropriate factor is then applied to the manpower estimated for each Soviet military unit.

The estimating of some operations and maintenance costs is based on US analogy. The costs of overhauls, for example, are related to the original procurement costs of the equipment. Adjustments are made, however, to reflect Soviet operating rates when they are known to differ from US practices. In general, the quantity and quality of information on operating rates is lower than that of physical data about the forces.

The cost of petroleum, oils, and lubricants is based on estimated Soviet activity and consumption for each weapon system. For example, the estimated fuel consumption rate of a particular model of aircraft is applied to the average number of flying hours for that aircraft. The resulting quantities of POL are then costed at US prices.

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Facilities maintenance costs are based on the assumed life of the facility and are a function of the cost of constructing it. US and Soviet experience is believed to be similar in this area.

Defense RDT&E Programs. The direct costing approach described above is not used to estimate the dollar cost of Soviet military RDT&E because the type of data needed for direct costing of observed programs is not available. The Soviet government publishes statistical data and descriptive material about scientific activities, however, including information on manpower, facilities, and overall expenditures. Despite a number of shortcomings, this body of information is used as a basis for estimating military RDT&E and space activities in rubles. The dollar value of these expenditures is obtained by applying a ruble-dollar conversion ratio to the ruble estimate. Conceptually, the estimate roughly corresponds in coverage to the categories of US RDT&E activity funded by the Department of Defense and the Atomic Energy Commission and its successors.

For a number of reasons, the estimated dollar costs presented for Soviet RDT&E should be regarded

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as less reliable than the dollar costs estimated for investment and operating. First, because the basic data come from Soviet publications, there is an element of uncertainty about their reliability and about our understanding of them. Second, the distribution of Soviet RDT&E expenditures between military and civil applications continues to be estimated largely on the basis of information published in the Fifties. Finally, the translation from rubles to dollars presents a number of theoretical complexities as well as practical problems.

#### Organization of the US and Soviet Data for Comparisons

When making comparisons between US data and estimated dollar costs of Soviet programs, the US expenditure data are developed from the Department of Defense Five-Year Defense Program (FYDP) and adjusted by budget and related DoD expenditure data. Military aid and civil defense expenditures are excluded from the US data, and appropriate federally funded expenditures by the AEC and its successors are included. For comparability, the US and Soviet data bases are adjusted into a common data format that is defined in close accord with the FYDP accounting system.

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#### Constant and Current Prices

The expenditure data for comparisons are always expressed in constant US prices, the most recent year for which we have complete price indices is 1973. A constant price base is used so that all changes in spending from year to year reflect changes in the forces and programs themselves rather than changes in prices. For tracing the size of the defense effort over time, or for analyzing the real shifts of resources within that effort, a constant price series is the appropriate measure. Expenditures expressed in current prices show trends that are quite different. A series in current prices is useful for analyzing budget components, but in times of rising prices it significantly overstates the real growth in forces during the period.

#### Uses of Dollar Comparisons

The comparisons of US defense spending and the estimated dollar costs of Soviet defense programs should not be used in isolation to draw conclusions about the relative military effectiveness or capabilities of US and Soviet forces. Some activities

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funded by defense budgets contribute only indirectly to military capabilities--for example, pensions, dependent medical support, commissaries, etc.--and such activities are likely to be larger in the US than in the USSR. Even in the case of comparisons that are focused on spending flows that do contribute directly to capabilities--for example, procurement of tactical aircraft--equal dollar figures for the US and USSR do not necessarily imply equal contributions to military capabilities. A different body of force-related information must also be considered for such judgments.

In studying US/USSR comparisons it should be emphasized that the US Department of Defense budget data have been adjusted to achieve comparable accounting coverage with the dollar estimates made for the USSR. DoD spending for military aid and civil defense is excluded from the US data federally funded AEC spending is included, and military RDT&E spending has been aggregated into one account. For these reasons the dollar figures for total US spending will not match actual US Department of Defense budget authorizations or appropriations.